Contacts between wildlife and domestic livestock at the Kruger National Park interface of the Republic of South Africa

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PURPOSE

Contact between wildlife and domestic livestock drives the transmission of transboundary animal diseases (TADs). The most important TAD that affects both wildlife and domestic livestock in the Republic of South Africa is foot-and-mouth disease (FMD). We believe that one of the potential risk pathways for spread of FMD virus from wildlife to domestic livestock raised in proximity to the Kruger National Park (KNP) is close contact between cattle and buffalo and/or impala. The objective of this study was to estimate the rate of contacts between wildlife and domestic livestock for winter and summer seasons in the KNP and Limpopo province.

METHOD

Livestock owners and field rangers are the first line of responders to report contacts between wildlife and domestic livestock. Contacts were estimated using a cross-sectional design by administering questionnaires to these target groups. The study location included the KNP and the buffer with vaccination zone in the Limpopo province (KNPI). In 2007, eighty-seven livestock owners and 58 field rangers were interviewed in the KNPI. The questionnaire consisted of frequency, number, group size, ecology (water sources, activity), duration, and type of wildlife species contacting domestic livestock between October 2006 and September 2007. Contact was defined as ‘when wildlife and cattle are visible together in an area equivalent to a football field (approximately 90-120 meters long and 45-90 meters wide)’. The responses (paired by season) were analyzed using McNemar’s chi-square test.

RESULTS

Fifteen (17%) livestock owners reported contact between wildlife (Buffalo, Impala, Elephant and Warthog) and cattle. Livestock owners reported contacts in the following municipalities in the Limpopo province: Giyani, 13; Thulamela, 1; and Ba – Phalaborwa, 1. The most common species-specific contacts were between cattle and buffalo (16/year) followed by cattle and impala (14/year). More contacts ($p=0.012$) were reported for summer compared to winter for wildlife and cattle. There was no difference between seasons for other species-

specific contacts.

Fourteen (24%) field rangers reported contact between domestic livestock and wildlife. Field rangers reported contacts in the following regions in the KNP: Nxanatseni (Far North), 8; Marula (South), 4; Nxanatseni (North), 2; and Nkayeni (Central), 0. The most common species-specific contacts were between cattle and buffalo (41/year) followed by cattle and impala and cattle and lion (10/year each). More contacts ($p=0.030$) were reported for summer compared to winter between cattle and buffalo. There was no difference between seasons for other species-specific contacts.

CONCLUSION

There was no evidence of higher contacts between domestic livestock and wildlife in the KNPI in the winter compared to summer. The most common species-specific interaction was between cattle and buffalo. Specific contact rates can be used to model the transmission of TADs within the KNPI.